Listing networks


```
C:\Users\Kennedey>docker network ls
NETWORK ID      NAME        DRIVER      SCOPE
9e6345bf4f8d    bridge      bridge      local
3c8fa9f4813d    host        host        local
f8007877fcc8    none        null        local

C:\Users\Kennedey>
```

Inspecting bridge network


```
C:\Users\Kennedey>docker network inspect bridge
[
    {
        "Name": "bridge",
        "Id": "9e6345bf4f8d36e0f46c9d261de271db2745de120617006fc4a5e3bbb848f125",
        "Created": "2021-06-04T20:38:18.4323584Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": null,
            "Config": [
                {
                    "Subnet": "172.17.0.0/16"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {},
        "Options": {
            "com.docker.network.bridge.default_bridge": "true",
            "com.docker.network.bridge.enable_icc": "true",
            "com.docker.network.bridge.enable_ip_masquerade": "true",
            "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
            "com.docker.network.bridge.name": "docker0",
            "com.docker.network.driver.mtu": "1500"
        },
        "Labels": {}
    }
]

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```

Inspecting the bridge network with ping container

```
Command Prompt

C:\Users\Kennedey>docker run --rm -d --name dummy nethgonzales/ping:1.0
0bd45183c6ade96109d2542777e8ce214663b168866d11e7bc64b6ce997f3769

C:\Users\Kennedey>docker network inspect bridge
[
    {
        "Name": "bridge",
        "Id": "9e6345bf4f8d36e0f46c9d261de271db2745de120617006fc4a5e3bbb848f125",
        "Created": "2021-06-04T20:38:18.4323584Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": null,
            "Config": [
                {
                    "Subnet": "172.17.0.0/16"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {
            "0bd45183c6ade96109d2542777e8ce214663b168866d11e7bc64b6ce997f3769": {
                "Name": "dummy",
                "EndpointID": "6144bd38ca866818bca7850b733976e4f217d08a3e06b061d45c534cd69f8b02",
                "MacAddress": "02:42:ac:11:00:02",
                "IPv4Address": "172.17.0.2/16",
                "IPv6Address": ""
            }
        },
        "Options": {
            "com.docker.network.bridge.default_bridge": "true",
            "com.docker.network.bridge.enable_icc": "true",
            "com.docker.network.bridge.enable_ip_masquerade": "true",
            "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
            "com.docker.network.bridge.name": "docker0",
            "com.docker.network.driver.mtu": "1500"
        },
        "Labels": {}
    }
]

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```

Ping dummy (using IP)

```
Command Prompt

C:\Users\Kennedey>docker run --rm -d -e PING_TARGET=172.17.0.2 --name pinger nethgonzales/ping:1.0
a1f3ec0e509ff084766c9a193a886158f9663fef04caa27cee17c6d2ee00ccaa

C:\Users\Kennedey>docker ps -a
CONTAINER ID   IMAGE                   COMMAND              CREATED         STATUS          PORTS     NAMES
a1f3ec0e509f   nethgonzales/ping:1.0   "sh -c 'ping $PING_T…"   9 seconds ago   Up 6 seconds              pinger
0bd45183c6ad   nethgonzales/ping:1.0   "sh -c 'ping $PING_T…"   6 minutes ago   Up 6 minutes              dummy

C:\Users\Kennedey>docker logs pinger
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.080 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.042 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.084 ms
64 bytes from 172.17.0.2: icmp_seq=4 ttl=64 time=0.085 ms
64 bytes from 172.17.0.2: icmp_seq=5 ttl=64 time=0.094 ms
64 bytes from 172.17.0.2: icmp_seq=6 ttl=64 time=0.093 ms
64 bytes from 172.17.0.2: icmp_seq=7 ttl=64 time=0.084 ms
64 bytes from 172.17.0.2: icmp_seq=8 ttl=64 time=0.087 ms
64 bytes from 172.17.0.2: icmp_seq=9 ttl=64 time=0.159 ms
64 bytes from 172.17.0.2: icmp_seq=10 ttl=64 time=0.096 ms
64 bytes from 172.17.0.2: icmp_seq=11 ttl=64 time=0.094 ms
64 bytes from 172.17.0.2: icmp_seq=12 ttl=64 time=0.095 ms
64 bytes from 172.17.0.2: icmp_seq=13 ttl=64 time=0.088 ms
64 bytes from 172.17.0.2: icmp_seq=14 ttl=64 time=0.096 ms
64 bytes from 172.17.0.2: icmp_seq=15 ttl=64 time=0.098 ms
64 bytes from 172.17.0.2: icmp_seq=16 ttl=64 time=0.096 ms
64 bytes from 172.17.0.2: icmp_seq=17 ttl=64 time=0.055 ms

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```

Ping dummy (using name), does not work

Command Prompt

C:\Users\Kennedey>docker run --rm -d -e PING_TARGET=dummy --name pinger nethgonzales/ping:1.0
242ab943a4d948a7035eb0201b3104d8fde7bb3dc3ede85d78255ca26a991372

C:\Users\Kennedey>docker ps -a
CONTAINER ID   IMAGE   COMMAND   CREATED   STATUS   PORTS   NAMES
0bd45183c6ad   nethgonzales/ping:1.0 "sh -c 'ping $PING_T…" 15 minutes ago   Up 15 minutes   dummy

C:\Users\Kennedey>

Managing custom networks

Command Prompt

C:\Users\Kennedey>docker network create skynet
6b42458880fe3162a79b2ff851c10b40b5d96aac1a37577e577c2f49e63eca88

C:\Users\Kennedey>docker network ls
NETWORK ID   NAME   DRIVER   SCOPE
9e6345bf4f8d   bridge   bridge   local
3c8fa9f4813d   host   host   local
f8007877fcc8   none   null   local
6b42458880fe   skynet   bridge   local

C:\Users\Kennedey>docker network inspect skynet
[
    {
        "Name": "skynet",
        "Id": "6b42458880fe3162a79b2ff851c10b40b5d96aac1a37577e577c2f49e63eca88",
        "Created": "2021-06-05T00:20:42.1092057Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "172.18.0.0/16",
                    "Gateway": "172.18.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {},
        "Options": {},
        "Labels": {}
    }
]

C:\Users\Kennedey>

Ping dummy (using name), now works since host name resolves to IP address

Command Prompt

C:\Users\Kennedey>docker run --rm -d --network skynet --name dummy nethgonzales/ping:1.0
c1f1b3c08d7baf7cac760c852ec3171376a644a9788b6849da48e969ba5d82d2

C:\Users\Kennedey>docker run --rm -d --network skynet -e PING_TARGET=dummy --name pinger nethgonzales/ping:1.0
2415bb747c7f8f563f1aa5ccc355ab7e1e584a67144b4d033b9f3d4437abd977

C:\Users\Kennedey>docker logs pinger
PING dummy (172.18.0.2) 56(84) bytes of data.
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=1 ttl=64 time=0.065 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=2 ttl=64 time=0.099 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=3 ttl=64 time=0.097 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=4 ttl=64 time=0.104 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=5 ttl=64 time=0.097 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=6 ttl=64 time=0.098 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=7 ttl=64 time=0.102 ms

Connecting between containers in a network


```
Command Prompt

C:\Users\Kennedey>docker run --rm -d -e POSTGRES_PASSWORD=password --name widgetdb --network skynet -p 5432 postgres
Unable to find image 'postgres:latest' locally
latest: Pulling from library/postgres
69692152171a: Already exists
a31b993d5cc6: Pull complete
f65921886500: Pull complete
b9c1a94e4ca8: Pull complete
435dd99ceb68: Pull complete
d3ee8e88c67c: Pull complete
84b08674f942: Pull complete
7d358e850d3e: Pull complete
c7dcc5801f3b: Pull complete
f6eeca01c79c: Pull complete
392faa2e3ddd: Pull complete
3e77feaf6319: Pull complete
9b42e6c9c7ba: Pull complete
5fce2660d75c: Pull complete
Digest: sha256:117c3ea384ce21421541515edfb11f2997b2c853d4fdd58a455b77664c1adc20
Status: Downloaded newer image for postgres:latest
65b48e9769ba56835fff4adef51510bd5184379222511cbe12098cb8fe3af279

C:\Users\Kennedey>docker run --rm -d -e POSTGRES_PASSWORD=password --name gadgetdb --network skynet -p 5432 postgres
0bcb6cd35708abf554322aa5f42e0de4399cccbe6454f0dc36c8d76393c1b2d6

C:\Users\Kennedey>docker ps -a
CONTAINER ID   IMAGE      COMMAND               CREATED          STATUS          PORTS                     NAMES
0bcb6cd35708   postgres   "docker-entrypoint.s…"   7 seconds ago    Up 3 seconds    0.0.0.0:51417->5432/tcp   gadgetdb
65b48e9769ba   postgres   "docker-entrypoint.s…"   29 seconds ago   Up 24 seconds   0.0.0.0:51410->5432/tcp   widgetdb

C:\Users\Kennedey>docker exec -it widgetdb /bin/bash
root@65b48e9769ba:/# psql -U postgres
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@65b48e9769ba:/# psql -U postgres -h gadgetdb
Password for user postgres:
psql: error: FATAL:  password authentication failed for user "postgres"
root@65b48e9769ba:/# exit
exit

C:\Users\Kennedey>
```

Binding ports to the host


```
Command Prompt                                                      —    □    ✕

C:\Users\Kennedey>docker run --rm -d -e POSTGRES_PASSWORD=password --name widgetdb --network skynet -p 5432:5432 postgres
0608c03f6fc87f951c98e20e46f6011c0bd895e73b2f9523b7e17af69de7ac3e

C:\Users\Kennedey>docker exec -it widgetdb /bin/bash
root@0608c03f6fc8:/# psql -U postgres -h localhost
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@0608c03f6fc8:/# exit
exit

C:\Users\Kennedey>docker stop widgetdb
widgetdb

C:\Users\Kennedey>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES

C:\Users\Kennedey>
```